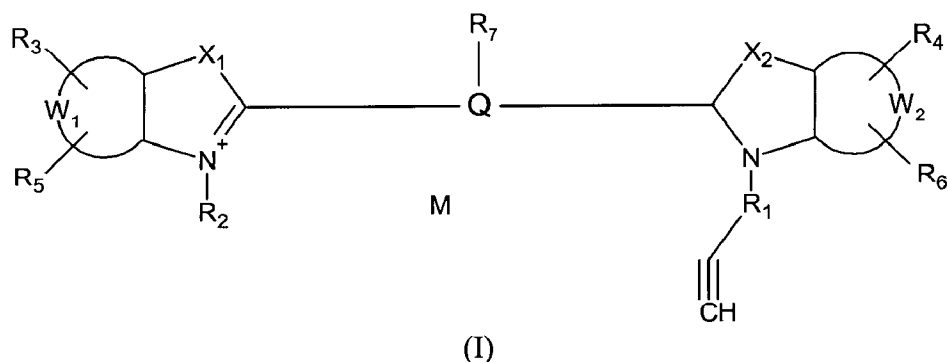


Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A cyanine modified with an alkynyl-linker arm, having the following general formula (I), including the valence tautomers thereof:



wherein

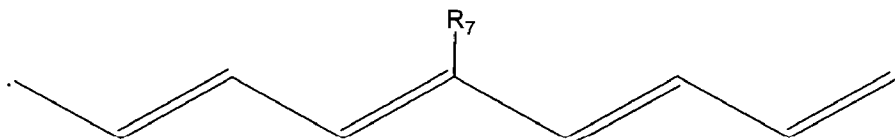
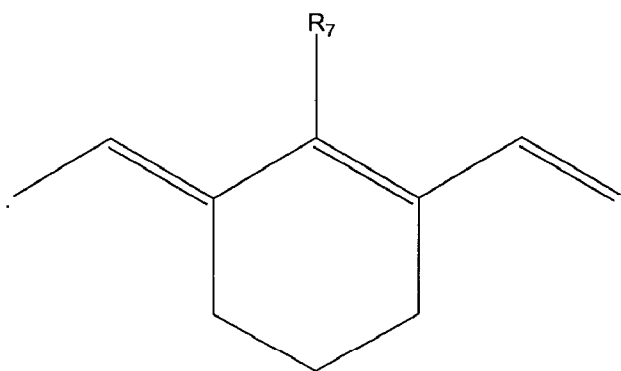
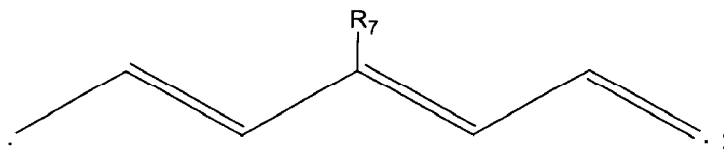
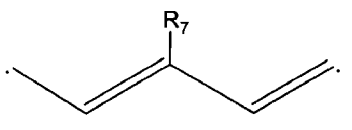
R₁ is a linear, saturated or unsaturated alkyl chain, having from 1 to 30 carbon atoms, wherein one or more carbon atoms are each optionally substituted by a component independently selected from an oxygen or a sulfur atoms, a –NH– or a –CONH– group, or a cyclic 4-, 5- or 6- membered grouping of carbon atoms, aromatic or not aromatic, wherein one or more carbon atoms are each optionally substituted by a heteroatom independently selected from oxygen, sulfur, nitrogen and selenium; W₁ and W₂ are independently selected from a benzene ring and a naphthalene ring wherein one or more carbon atoms are optionally substituted by one or more heteroatoms selected from oxygen, sulfur, selenium and nitrogen, or one of W₁ and W₂ is absent, or both of them are absent; X₁ and X₂ are independently selected from the group consisting of –O–, –S–, –Se–, –C(CH₃)₂–, –NH– and –CH=CH–,

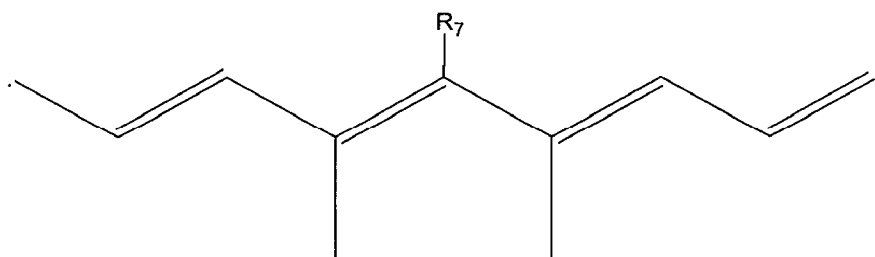
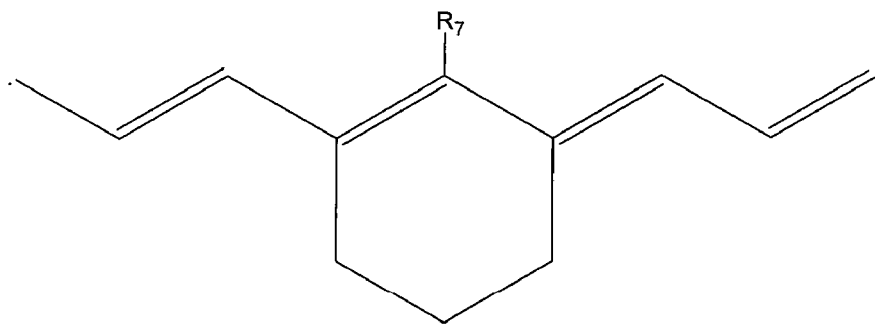
R₂, R₃, R₄, R₅ and R₆ are independently selected from hydrogen, –COOH, –OH, –NO₂, –OCH₃, –SO₃H, –SO₃[–], and –R₈–Y wherein R₈ is a linear, saturated or unsaturated alkyl chain, having from 1 to 30 carbon atoms, wherein one or more carbon atoms are each optionally substituted by a component independently selected by an oxygen or a sulfur atom, a –NH– or a –CONH– group, or a cyclic 4-, 5- or 6- membered grouping of carbon atoms, aromatic or not aromatic, wherein one or more carbon atoms are each optionally substituted by a heteroatom independently selected from oxygen, sulfur, nitrogen or selenium, and

wherein Y is selected from the group consisting of ~~hydrogen~~, carboxyl, carbonyl, amino, sulphhydryl, thiocyanate, isotyocianate, isocyanate, maleimide, hydroxyl, phosphoramidite, glycidyl, imidazolyl, carbamoyl, anhydride, bromoacetamido, chloroacetamido, iodoacetamido, sulphonyl halide, acyl halide, aryl halide, hydrazide, succinimidyl ester, hydroxysulfosuccinimidyl ester, phthalimidyl ester, naphthalimidyl ester, monochlorotriazine, dichlorotriazine, mono- or di- halide substituted pyridine, mono- or di-halide substituted diazine, aziridine, imidic ester, hydrazine, azidonitrophenyl, azide, 3-(2-pyridyldithio)-propionamide, glyoxal, aldehyde, nitrophenyl, dinitrophenyl, and trinitrophenyl ~~and~~ $\text{C}\equiv\text{CH}$, provided that one of R_2 , R_3 , R_4 , R_5 and R_6 is $\text{R}_8\text{-Y}$, ~~with Y being different from H and from $\text{C}\equiv\text{CH}$;~~

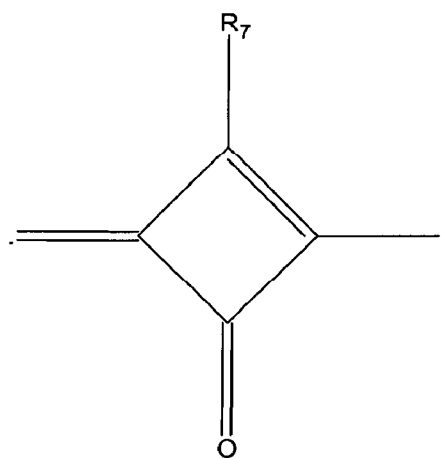
M is a counterion; and

Q is a polymethinic chain selected from:





or



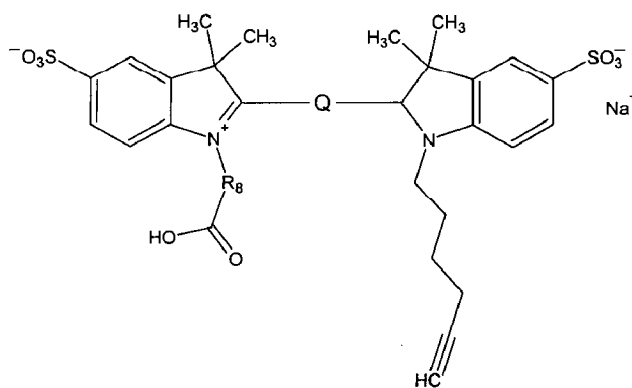
wherein R₇ is selected from the group consisting of hydrogen, fluorine, chlorine, bromine, iodine, phenoxy, thiophenoxy, anilino, cyclohexylamino, piridine, -R₈-Y, -O-R₈-Y, -S-R₈-Y, -NH-R₈-Y, wherein R₈ and Y are as defined above, and aryl optionally substituted by one or more substituents independently selected from the group consisting of -SO₃H, carboxyl (-COOH), amino (-NH₂), carbonyl (-CHO), thiocyanate (-SCN), isothiocyanate (-CNS), epoxy and -COZ wherein Z represents a leaving group.

2. (original) The cyanine according to claim 1, wherein said leaving group is selected from the group consisting of -Cl; -Br; -I; -OH; -OR₁₁; -OCOR₁₁, wherein R₁₁ is linear or branched alkyl having from 1 to 4 carbon atoms;

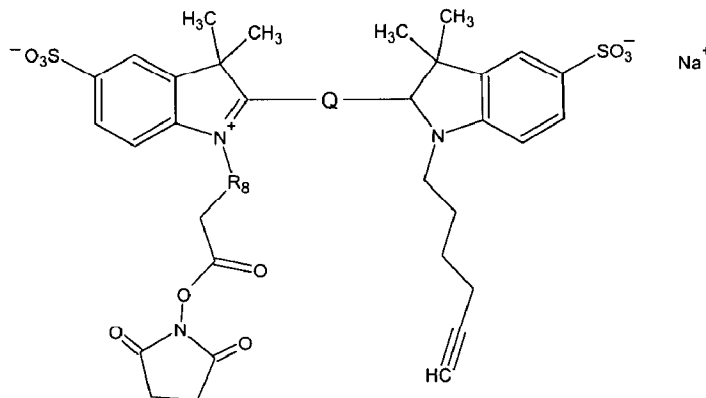
–O–CO–Ar, wherein Ar is aryl optionally substituted; –O–CO–Het, wherein Het is selected from succinimide, sulfosuccinimide, phthalimide and naphthalimide; –NR₂₂R₃₃, wherein R₂₂ and R₃₃ are each independently linear or branched alkyl having from 1 to 10 carbon atoms.

3. (canceled)

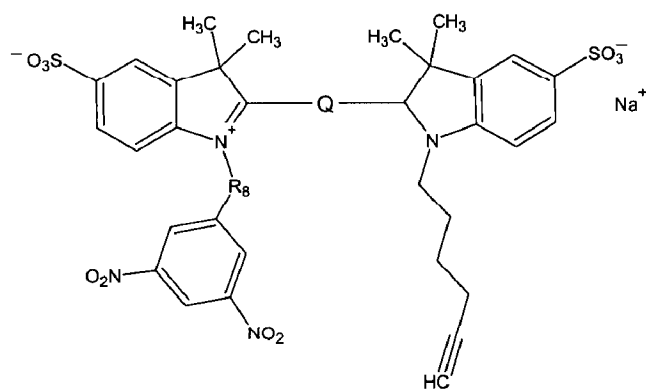
4. (previously presented) The cyanine according to claim 2 selected from the group consisting of:



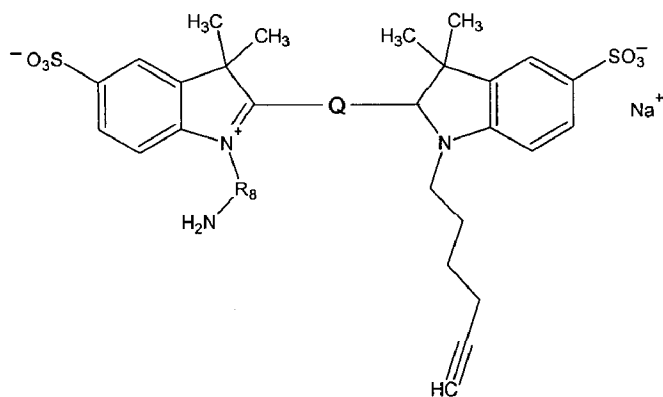
Formula (Ib)



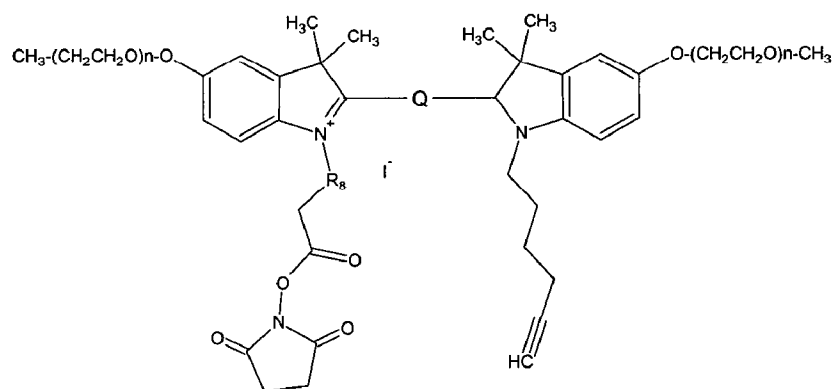
Formula (Ic)



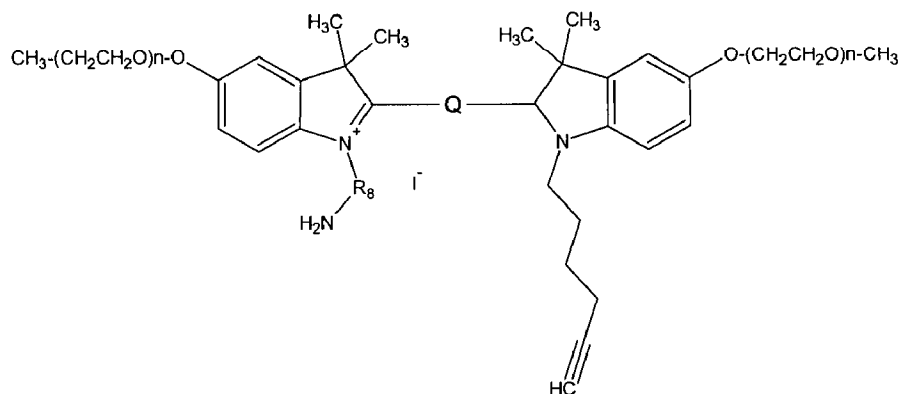
Formula (Id)



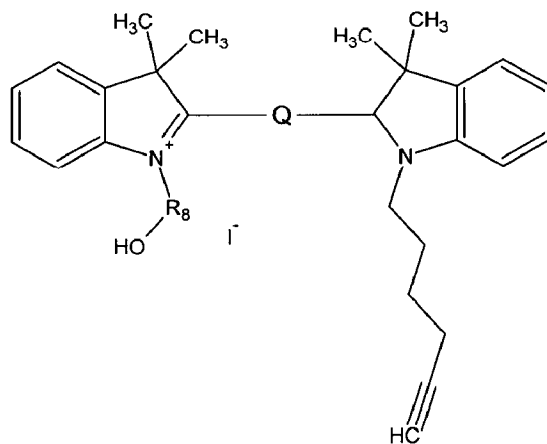
Formula (Ie)



Formula (II)



Formula (Im)



Formula (In),

wherein Q and R₈ are as defined in claim 1 and n is an integer between 1 and 100.

5. (previously presented) The cyanine according to any of the claims 1 to 4, conjugated through the linker arm -R₁-C≡CH with a biomolecule.

6. (original) The cyanine according to claim 5, wherein said biomolecule is selected from the group consisting of nucleotides, nucleosides, oligonucleotides, nucleic acids, peptides and proteins.

7. (previously presented) The cyanine according to claim 1, conjugated through the linker arm -R₁-C≡CH with a second fluorescent dye, said second fluorescent dye being capable of emitting fluorescence at wavelengths at which the cyanine is capable of absorbing, or said fluorescent dye being capable of absorbing at wavelengths at which the cyanine is capable of emitting.

8. (original) The conjugated cyanine according to claim 7, wherein said second fluorescent dye is N,N'-Difluoroboryl-1,9-dimethyl-5-(4-iodophenyl)-dipyrrin.

9. (original) The conjugated cyanine according to claim 7, wherein said second fluorescent dye is a transition metal complex with at least one heterocyclic nitrogen-containing ligand.

10. (previously presented) The cyanine according to claim 1, conjugated through the linker arm $-R_1-C\equiv CH$ with a first biomolecule selected from the group consisting of nucleotides, nucleosides, oligonucleotides, nucleic acids, peptides, proteins, vitamins and hormones, and through the linker arm $-R_8-Y$ with a second equal or different biomolecule selected from the group consisting of nucleotides, nucleosides, oligonucleotides, nucleic acids, peptides, proteins, vitamins and hormones.

11. (canceled)

12. (canceled)

13. (previously presented) The use of a cyanine according to claim 1 as a fluorescent marker for biomolecules or as a quencher.